DLA Strategic Materials Hazard Communication (HazCom) Program

May 2015

What is an OSHA defined hazardous chemical?

- Chemical means any substance, or mixture of substances.
- Hazardous chemical means any chemical which is classified as a physical hazard or a health hazard, a simple asphyxiant, combustible dust, pyrophoric gas, or hazard not otherwise classified

OXIDIZER EXPLOSIVE

DLA Strategic Materials HazCom Program Overview

- Purpose: to prevent occupational injuries and illnesses related to hazardous substances
 - Personnel and contractors are provided with essential safety and health information and training needed to work safely with the hazardous substances found in the workplace
- Applies at all DLA Strategic Materials facilities where hazardous chemicals are used in Depot operations and to all personnel, including janitorial and facilities maintenance contract personnel, who by the nature of their duties may use or be exposed to these chemicals
- United Nations GHS of Classification and Labeling will be fully in effect by June 1, 2015.

HazCom Updates

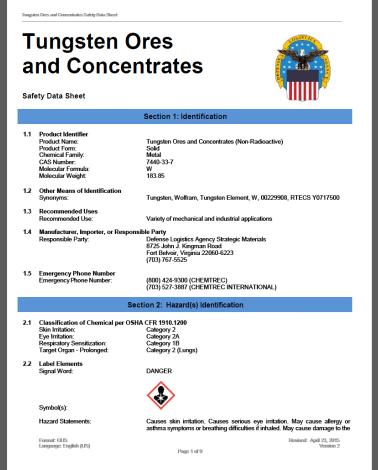
- Beginning June 1, 2015, all DLA Strategic Materials Material Safety Data Sheets will be replaced with updated Safety Data Sheets
 - Includes accompanying shipments of materials, hard copies at depots, on shared drive, and in annual HazCom training presentation
 - Depot environmental monitors will be responsible for obtaining and maintaining the SDSs.
 - Environmental Monitor should contact the manufacturer to obtain an SDS if it was not included with the material shipment.
- After December 1, 2015, DLA Strategic Materials shall not ship containers labeled by the chemical manufacturer or importer unless the label has been modified to comply with the GHS/OSHA requirements
 - Chemicals received at depots will be inspected to ensure that the required labels have been affixed to the container by the manufacturer or distributor.
- Acquisition contracts for strategic and critical materials will contain a clause requiring Safety Data Sheets and proper labeling of containers.
- By June 1, 2016, DLA Strategic Materials must update workplace labeling and its HAZCOM program as necessary and provide additional employee training, to include contractor personnel working onsite for newly identified physical or health hazards.

Workers have the right to know and understand the hazardous chemicals they use and how to work with them safely.

www.osha.gov/hazcom 800-321-0SHA (6742) TTY 1-877-889-5627

Hazard Communication

UPDATE: Safety Data Sheets



No employee should use a hazardous chemical without being familiar with the chemical by first reviewing the MSDS or SDS so that he or she is fully aware of the potential hazards associated with its use

Section 1: Identification

- Product Identifier
 - Name, form, family, molecular weight/formula
- Other means of Identification
 - Other common names
- Recommended Uses
- Manufacturer, Importer, or Responsible Party
- Emergency Phone Number

		Section 1: Identification
1.1	Product Identifier Product Name: Product Form:	Tungsten Ores and Concentrates (Non-Radioactive) Solid
	Chemical Family: CAS Number: Molecular Formula: Molecular Weight	Metal 7440-33-7 W 183.85
1.2	Other Means of Identification Synonyms:	Tungsten, Wolfram, Tungsten Element, W, 00229908, RTECS Y0717500
1.3	Recommended Uses Recommended Use:	Variety of mechanical and industrial applications
1.4	Manufacturer, Importer, or Respons Responsible Party:	ible Party Defense Logistics Agency Strategic Materials 8725 John J. Kingman Road Fort Belvoir, Virginia 22060-6223 (703) 767-5525
1.5	Emergency Phone Number Emergency Phone Number:	(800) 424-9300 (CHEMTREC) (703) 577-3887 (CHEMTREC INTERNATIONAL)

Section 2: Hazard (s) Identification

- Classification of Chemical Per OSHA CFR 1910.1200
 - Skin, Eye, Respiratory, Target Organ (prolonged)
- Label Elements
- Other Hazards
- Unknown Acute Toxicity
 - For a mixture that contains an ingredient(s) with unknown toxicity, a statement will be included describing how much of the mixture consists of ingredient(s) with unknown acute toxicity

Section 2: Hazard(s) Identification

2.1 Classification of Chemical per OSHA CFR 1910.1200
Skin Irritation: Category 2

Skin Irritation: Eye Irritation: Respiratory Sensitization:

Respiratory Sensitization: Target Organ - Prolonged:

2.2 Label Elements Signal Word:

DANGER

Category 2A

Category 1B

Category 2 (Lungs)



Symbol(s):

Hazard Statements:

Format GHS Language: English (US) Causes skin irritation. Causes serious eye irritation. May cause allergy or asthma symptoms or breathing difficulties if inhaled. May cause damage to the

Revised: April 23, 2015 Version 2

Page 1 of 9

Tungsten Ores and Concentrates Safety Data Sheet

Precautionary Statements:

lungs through prolonged or repeated exposure.

Prevention: Wear protective gloves. Wear eye protection/face protection.
 Wash thoroughly after handling. Do not breathe dust. In case of inadequate ventilation, wear respiratory protection.

Response: If on skin, wash with plenty of water. If skin irritation occurs, get medical advice/attention. Take off contaminated clothing and wash it before reuse. If in eyes, rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists, get medical advice/attention. If inhaled and breathing is difficult.

respiratory symptoms, call a doctor. Get medical advice/treatment if you feel unwell.

Storage: No specific storage requirements.

<u>Disposal:</u> Dispose of contents/container in accordance with federal, state, and local regulations.

remove person to fresh air and keep comfortable for breathing. If experiencing

2.3 Other Hazards

Negligible fire and explosion hazard in bulk form. Dust/air mixtures may ignite or explode.

2.4 Unknown Acute Toxicity
Does not apply to this product.

May 2015

Section 3: Composition/Information on Ingredients

Section 3: Composition / Information on Ingredients

3.1 Chemical Name

Chemical Name: Tungsten Composition: 100%

3.2 Common Names/Synonyms

Synonyms: See Section 1.2 for common names and synonyms.

3.3 CAS Number/Unique Identifiers

CAS Number: 7440-33-7 EC Number (EINECS): 231-143-9

3.4 Impurities/Stabilizing Additives
No data available.

- Chemical Name/Composition
- Common names/synonyms
- CAS #/Unique identifiers
- Chemical where trade secret is claimed
 - A statement that the specific chemical identity and/or exact percentage (concentration) of composition has been withheld as a trade secret is required.

Section 4: First-Aid Measures

- Description of first aid measures
- Most important symptoms/effects, acute and delayed
- Indication of immediate medial attention/special treatment

Section 4: First-Aid Measures

4.1 Description of First-Aid Measures

Inhalation: Skin Contact: If adverse effects occur, remove to uncontaminated area. Give artificial respiration if not breathing. Get immediate medical attention.

Wash skin with soap and water for at least 15 minutes. Remove contaminated

clothing and shoes. Get medical attention, if needed. Thoroughly clean and

dry contaminated clothing and shoes before reuse.

Eye Contact: Flush eyes with plenty of water for at least 15 minutes. Get immediate medical

attention.

Ingestion: Rinse mouth and administer water for dilution if the patient can swallow, has a

strong gag reflex, and does not drool. Get medical attention.

4.2 Most Important Symptoms/Effects, Acute and Delayed

Inhalation (Acute):
Inhalation (Chronic):
Skin Contact (Acute):
Skin Contact (Chronic):
May cause irritation.
May cause irritation.
May cause dematitis.

Skin Contact (Chronic): May cause dermatitis.

Page 2 of 9

Revised: April 23, 2015 Version 2

Tungsten Ores and Concentrates Safety Data Sheet

Language: English (US)

Eye Contact (Acute): May cause irritation.
Eye Contact (Chronic): May cause conjunctivitis.

Ingestion (Acute): May cause irritation of gastrointestinal tract, nausea, vomiting.

Ingestion (Chronic): No information on significant adverse effects.

4.3 Indication of Immediate Medical Attention/Special Treatment

Get immediate medical attention if inhaled, exposed to eyes, and/or ingested.

Section 5: Fire-Fighting Measures

- Recommendations for suitable extinguishing equipment
- Advice on specific hazards that develop from the chemical during fire
- Recommendations on special PPE or precautions for firefighters

Section 5: Fire-Fighting Measures

- 5.1 Suitable Extinguishing Media
 - Dolomite, dry powder for metal fires, dry sand, graphite, soda ash, and sodium chloride.
- 5.2 Specific Hazards
 - Negligible fire and explosion hazard in bulk form. Dust/air mixtures may ignite or explode.
- 5.3 Special Protective Equipment and Precautions
 - Move container from fire area if it can be done without risk. Cool containers with water spray until well after the fire is out. Stay away from the ends of tanks. For fires in cargo or storage area: Cool containers with water from unmanned hose holder or monitor nozzles until well after fire is out. If this is impossible then take the following precautions: Keep unnecessary people away, isolate hazard area, and deny entry. Let the fire burn. Use extinguishing agents appropriate for surrounding fire. Avoid inhalation of material or combustion by-products.

Section 6: Accidental Release Measures

Section 6: Accidental Release Measures

- 6.1 Personal Precautions, Protective Equipment, and Emergency Procedures Keep all unauthorized people away, isolate hazard area, and deny entry. Personal protective equipment is discussed in Section 8.3.
- 6.2 Methods and Materials for Containment and Cleaning Up Collect spilled material in appropriate container for disposal.
- Provides recommendations on appropriate response to spills, leaks or releases
 - Includes containment and cleanup practices to prevent or minimize exposure

Section 7: Handling and Storage

- Provides guidance on safe handling practices and conditions for safe storage of chemicals
 - Recommendations/Precautions for safe handling
 - Recommendations on conditions for safe

Section 7: Handling and Storage

7.1 Precautions for Safe Handling

ctorago

Handle in accordance with all current regulations and standards. Use methods to minimize dust. Utilize personal protective equipment to avoid contact with skin. Personal protective equipment is discussed in **Section 8.3**.

7.2 Conditions for Safe Storage

Store in accordance with all current regulations and standards. Keep separated from incompatible substances. Incompatible materials are identified in Section 10.5.

Controls/Personal Protection

- Indicates exposure limits, engineering controls, and personal protective measures
 - Used to minimize worker exposure
 - PELs/TLVs
 - PPE
 - Special requirements for PPE (i.e. type of glove material, etc.)

Section 8: Exposure Controls / Personal Protection

Exposure Limits

Tungsten Ores and Concentrates (Non-Radioactive):

Tungsten and Insoluble Compounds (as W):

OSHA PEL / STEL: Vacated by 58 FR 35338, 6/30/1993

ACGIH TWA: 5 mg/m³ ACGIH STEL: NIOSH REL TWA: 5 mg/m³ NIOSH REL STEL: 10 mg/m³ UK WEL TWA: 5 mg/m³ UK WEL STEL: 10 mg/m³

Language: English (US)

Page 3 of 9

Revised: April 23, 2015

Tungsten Ores and Concentrates Safety Data Shee

Tungsten Ore (Wolframite):

ACGIH TWA: 5 mg(W)/m3 (insoluble compounds) 10 mg(W)/m³ (insoluble compounds) 1 mg(W)/m³ (soluble compounds) ACGIH STEL: ACGIH TWA: ACGIH STEL: 3 mg(W)/m3 (soluble compounds)

NIOSH REL TWA: 5 mg(W)/m3 NIOSH REL STEL: 10 mg(W)/m3

8.2 Appropriate Engineering Controls

Ventilation: Provide local exhaust system or process enclosure ventilation system. Ensure

compliance with applicable exposure limits.

Individual Protection Measures

Unknown Concentrations/IDLH:

Eye Protection:

Wear splash resistant safety goggles. Provide an emergency eye wash

fountain and quick drench shower in the immediate work area.

Wear appropriate chemical resistant clothing. Clothing:

Gloves: Wear appropriate chemical resistant gloves

Respirator: The following respirators and maximum use concentrations are drawn from

NIOSH and/or OSHA.

1. Any air-purifying respirator equipped with an N100, R100, or P100 filter (including N100, R100, and P100 filtering facepieces) except quarter-mask

2. Any supplied-air respirator.

3. Any self-contained breathing apparatus with a full facepiece.

1. Any self-contained breathing apparatus that has a full facepiece and is operated in a pressure-demand or other positive-pressure mode.

2. Any supplied-air respirator with a full facepiece that is operated in a pressure-demand or other positive-pressure mode in combination with an auxiliary self-contained breathing apparatus operated in pressure-demand or

other positive-pressure mode.

1. Any air-purifying respirator equipped with an N100, R100, or P100 filter Escape:

(including N100, R100, and P100 filtering facepieces).

Any appropriate escape-type, self-contained breathing apparatus.

Section 9: Physical and Chemical Properties

Section 9: Physical and Chemical Properties

9.1 Appearance

Physical State: Solid

Physical Description: White to Gray or Black, Hard, Brittle Solid

9.2 Odor

Not available.

9.3 Odor Threshold Not available.

9.4 pH

Not applicable.

9.5 Melting / Freezing Points

Melting Point: Freezing Point: 6,134-6,206 °F (3,390-3,430 °C)

No data available.

Format GHS Language: English (US)

Page 4 of 9

Revised: April 23, 2015 Version 2

- Identifies physical and chemical properties associated with the substance/mixture
 - Appearance, Odor, pH, Melting/Freezing point, flammability, flash point, etc.

May 2015

• Describes reactivity hazards of the

- chemical and the chemical stability info
 - Indication if chemical is stable/unstable under normal ambient temp and conditions
 - Possibility of hazardous reactions

Section 10: Stability and Reactivity

10.1 Reactivity

Stable at normal temperatures and pressures. Oxidizes in air and must be protected at elevated temperatures.

10.2 Chemical Stability

Stable at normal temperatures and pressures.

10.3 Possibility of Hazardous Reactions

Alkali w/Halocarbons: May explode with heat or on impact.

Alkaline-Earth Metals w/Halocarbons: May explode with heat or on impact.

Attacked superficially. Agua Regia:

Bromine Pentafluoride: Violent reaction and possible ignition.

Violent reaction. Bromine Trifluoride:

Violent reaction and ignition. Chlorine Trifluoride: Fluorine:

Format: GHS Language: English (US) Incandescent reaction

Revised: April 23, 2015 Version 2

Section 11: Toxicological Information

- toxicological and health effects info or indicates that such data are not available
 - Likely routes of exposure
 - Description of short or long term exposure effects
 - Numerical measures of toxicity
 - Description of symptoms

Section 11: Toxicological Information

11.1 Likely Routes of Exposure

Routes of entry include inhalation, skin contact, eye contact, and ingestion.

11.2 Symptoms

See Section 4.2 for acute and chronic short and long-term exposure symptoms.

11.3 Short and Long Term Effects

Inhalation (Acute): May cause irritation and coughing.

Inhalation (Chronic): Prolonged or repeated exposure has been reported to cause pulmonary

fibrosis. Intratracheal injection into the lungs of experimental animals revealed the metallic dust to be inert, with the only pulmonary effect being areas of pigmentation. One conflicting study found the dust to cause interstitial pneumonitis and bronchiolitis in guinea pigs after intratracheal injection of 50 mg a week for 3 weeks. After one year, slight residual lesions in the form of

minor atrophic emphysema were present.

Skin Contact (Acute): Application of 500 mg to the skin of rabbits caused mild irritation. May cause

redness

Skin Contact (Chronic): May cause dermatitis.

Eye Contact (Acute): Application of 500 mg to the eyes of rabbits caused mild irritation. May cause

redness and conjunctivitis.

Eye Contact (Chronic): May cause conjunctivitis.

Ingestion (Acute): May cause nausea, vomiting, and irritation of the gastrointestinal tract.

Ingestion (Chronic): When rats were fed 2%, 5% or 10% powdered tungsten in their diets, the

females gained 15.4% less weight than the control females; there was no difference between tungsten-fed and control males. The sex specific effect was suggested to depend on metabolic utilization of foodstuffs. Reproductive

effects have been reported in animals.

11.4 Numerical Measures of Toxicity

Tungsten Ores and Concentrates (Non-Radioactive)

Irritation Data: 500 mg/24 hour(s) skin-rabbit mild

500 mg/24 hour(s) eyes-rabbit mild 5 gm/kg intraperitoneal-rat LD₅o

Toxicity Data: 5 gm/kg intraperi Acute Toxicity Level: Insufficient data.

Format: GHS Language: English (US) Revised: April 23, 2015 Version 2

Page 6 of 9

 Provides information to evaluate the environmental impact of chemical(s) if released to the environment

- Data from toxicity tests on aquatic organisms
- Biodegradation/oxidation /hydrolysis potential
- Absorption/leaching study results

Section 12: Ecological Information

- 12.1 Ecotoxicity No data available
- 12.2 Persistence and Degradability No data available.
- 12.3 Bioaccumulative Potential No data available.

12.4 Mobility in Soil

Tungsten compounds will exist as ions or insoluble solids in the environment and therefore volatilization from moist soil surfaces will not be an important fate process. Tungsten compounds will not volatilize from dry soil surfaces based upon their ionic character and low vapor pressures. If released into water, tungsten compounds will adsorb to suspended solids and sediment based upon their range or sorption coefficients. Tungsten in natural waters is in the form of tungstate (i.e., WO4-2) and other tungsten polyanions. Tungsten compounds will exist as ions or insoluble solids in the environment and therefore volatilization from water surfaces will not be an important fate process.

12.5 Other Adverse Effects

If released into water, tungsten compounds will adsorb to suspended solids and sediment based upon their range or sorption coefficients. Tungsten in natural waters is in the form of tungstate (i.e., WO4-2) and other tungsten polyanions. Tungsten compounds will exist as ions or insoluble solids in the environment and therefore volatilization from water surfaces will not be an important fate process.

Section 13: Disposal Considerations (non-mandatory)

Section 13: Disposal Considerations

Dispose in accordance with all applicable regulations.

 Provides guidance on proper disposal practices, recycling or reclamation of the chemical(s) or its container

Section 14: Transport Information (non-mandatory)

- Provides guidance on classification information for shipping and transporting of hazardous chemical(s) by road, air, rail or sea
 - UN number,
 shipping name
 - Transport hazard

Section 14: Transport Information

14.1 UN Number Not applicable.

14.2 UN Proper Shipping Name Not applicable.

14.3 Transport Hazard Class(es)

U.S. Department Of Transportation:
CA Transportation/Dangerous Goods:
Land Transport ADR:
No classification assigned.

Format: GHS Language: English (US)

Page 7 of 9

Revised: April 23, 2015

May 2015

Section 15: Regulatory Information

Section 15: Regulatory Information

US Regulations

CERCLA 102A/103 (40 CFR 302.4): Not regulated.

SARA Title III

Section (40 CFR 355 Subpart B): Not regulated. Section 304 (40 CFR 355 Subpart C): Sections 311/312 (40 CFR 370 .21): Yes (Fire) Section 313 (40 CFR 372.65): Not regulated.

OSHA Process Safety: Not regulated.

State Regulations:

California Proposition 65: Not regulated.

National Inventory Status

U.S. Inventory (TSCA): Listed on inventory.

TSCA 12(B) Export Notification: Not listed.

 Identifies the safety, health, and environmental regulations specific for the product that are not indicated anywhere else on the SDS

Section 16: Other information

- Indicates when the SDS was prepared or when last known revision was made
- Also includes other useful information as necessary

Section 16: Other Information

The information in this Safety Data Sheet meets the requirements of the United States Department of Labor OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION and regulations promulgated thereunder (29 CFR 1910.1200 et. seq.). This document is intended only as a guide to the appropriate precautionary material handling by a person trained in, chemical handling. Exposure to this chemical may have serious adverse health effects. This chemical may interact with other substances. Since the potential uses are so varied, all of the potential hazards of use or interaction with other chemicals or materials cannot be identified on this Safety Data Sheet. The user should recognize that this chemical can cause injury, especially if improperly handled, precautionary measures are not followed, and personal protective equipment not worn. Read and understand all precautionary information prior to use. The Defense Logistics Agency (DLA) shall not be held liable for any damage resulting from handling or from contact with the above chemical.

References:

OHS. Material Safety Data Sheet. Product Name: Tungsten Ores and Concentrates (Non-Radioactive). Revised June 16, 2005. (as provided by the Defense Logistics Agency)

American Conference of Governmental Industrial Hygienists. 2013 TLVs® and BEIs®, ACGIH® Publication #0113. 2013.

US Department of Transportation. Emergency Response Guidebook. 2012

Centers for Disease Control and Prevention. NIOSH Pocket Guide to Chemical Hazards, http://www.cdc.gov/niosh/npg/.

National Institute of Health, Toxicology Data Network. http://toxnet.nlm.nih.gov/

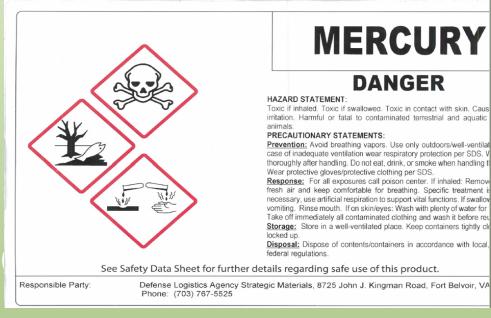
Location of Facility SDSs

- All updated facility SDSs will be located on the Q drive at Q://DNSC-M/ME/Safety Data Sheets
- Hard copies will also be located at each depot

- Contact depot Environmental Monitor for hard copy locations

UPDATE: Labels

- OSHA Label info will include:
 - Product identifier
 - Signal word
 - Hazard statement
 - Pictogram(s)
 - Precautionary statement(s)
 - Name, address, and telephone number of the chemical manufacturer, importer, or other responsible party



Pictograms

HCS Pictograms and Hazards Health Hazard Flame **Exclamation Mark** Flammables Carcinogen Irritant (skin and eye) Pyrophorics Skin Sensitizer Mutagenicity Reproductive Toxicity Self-Heating Acute Toxicity Respiratory Sensitizer Emits Flammable Gas Narcotic Effects Target Organ Toxicity Self-Reactives Respiratory Tract Irritant Aspiration Toxicity Organic Peroxides Hazardous to Ozone Laver (Non-Mandatory) Gas Cylinder **Exploding Bomb** Corrosion Gases Under Pressure Skin Corrosion/Burns Explosives Eye Damage Self-Reactives Corrosive to Metals Organic Peroxides Flame Over Circle Environment Skull and Crossbones (Non-Mandatory) Oxidizers Aquatic Toxicity Acute Toxicity (fatal or toxic) For more information: Occupational Safety and Health U.S. Department of Labor www.asha.gov (800) 321-OSHA (6742) OSHA 3491-02 2012

*Reference your OSHA quick card

Label requirements

- Shipped hazardous commodities can be subject to both the OSHA (i.e., GHS) hazard communication standard and DOT hazardous materials labeling requirements
- When a hazardous chemical is shipped by or on behalf of the Depot, the outer package must bear all of the required DOT marks and labels and all of the OSHA container label information with the exception of any diamond shaped pictogram for the same hazards that the DOT diamond hazard label already displays.
- If material arrives at the Depot without proper labeling affixed, then such material should be returned to the supplier for replacement or proper labeling.





Hazardous Materials

• Each depot will maintain a list of the hazardous chemicals known to be present in the work area/shop and stored outside

- Inventory will include identity of each hazardous chemical used in the work area, as it appears on the relevant SDS or MSDS
 - Proprietary information will not be included on the hazardous chemical inventory
- Inventory will be reviewed by the Depot Manager on an annual basis
- Contact EMR for location of your hazardous chemical inventory list

Additional Information

- Hazardous Communications plan located on the "I am the Key" website
- Contact Facility Environmental Monitor
- Contact HQ Environmental Office
- 29 CFF